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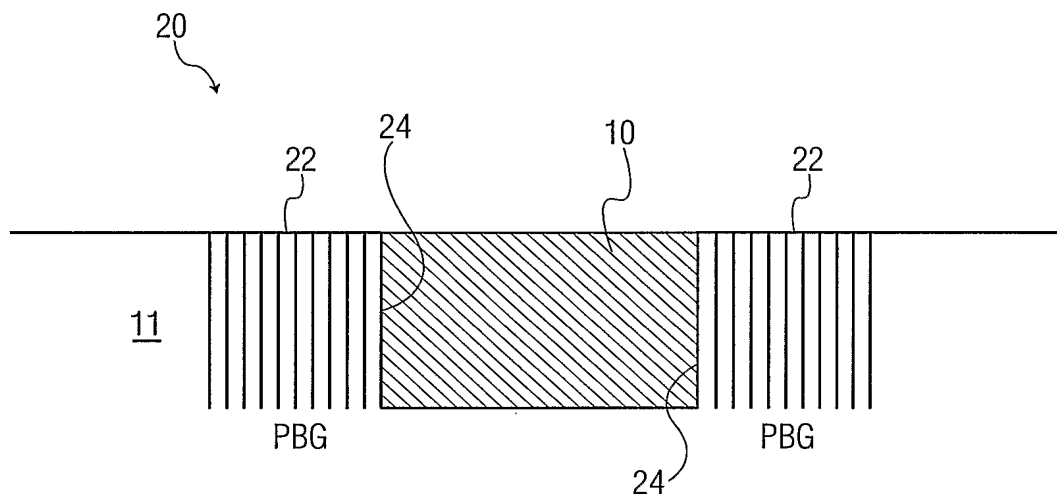
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**Declarations under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ,

[Continued on next page]

(54) Title: INTEGRATED OPTICAL WAVE GUIDE FOR LIGHT GENERATED BY A BIPOLAR TRANSISTOR



(57) Abstract: A monolithically integrated optical network device (20). The device comprises: a bipolar transistor (10) realized in a silicon substrate (11) that can be biased into an avalanche condition to emit photons; and a photonic bandgap (PBG) structure (22) monolithically integrated with the bipolar transistor (10) to act as an optical wave guide (16) for the photons generated by the bipolar transistor (10).

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